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Cognitive and Affective Factors in Students' Responses to a Leadership Debate: Experimental Evidence That The Audience Processes What It Hears

by

Douglas G. MacNeill

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Arts

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled "Cognitive and Affective Factors in Students' Responses to a Leadership Debate: Experimental Evidence That The Audience Processes What It Hears" submitted by Douglas Glen MacNeill in partial fulfillment of the requirements for the degree of Master of Arts

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Abstract

This thesis uses Erving Goffman's theoretical work on self-presentation and an experimental method to test what would happen if the voice of a speaker in a political debate were deliberately manipulated. The thesis experiment used a manipulated re-recording of the voice of one speaker in the experimental condition only while keeping the voice of the other speaker constant; in the control condition, the voices of both speakers were left unchanged. The experimental and control situations were presented before audiences of research subjects, and the situations were presented in such a manner as to replicate the experiment while controlling for whether the experimental or control condition was presented first. This thesis found that a subject's immediate response to the speaker whose voice was altered interacts with the subject's prior opinions about that speaker to form first the subject's emotional repsonse and then the subject's cognitive appraisal of the speaker whose voice has been altered. The thesis concludes with a discussion of the results and suggestions for further research on this topic.

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Chapter One: Introducing the Topic

I. How the Project Began

Scherer, Rosenthal, and Koivumaki (1972) addressed the possible ways in which an experimenter's voice could cue research subjects as to what the experiment was about. They used deliberate changes in the volume of the experimenter's speaking voice at critical points in the telling of the biography of a fictitious third person to test their hypothesis regarding the relationship between a speaker's voice and a listener's emotional response to a third person. Their work was the original source for the topic of this thesis.

The relationship between the speaker's use of his or her voice and the responses of research subjects looked like a natural topic for study in a thesis because that relationship seemed to be unjustly neglected by social psychologists in spite of its importance in the social world. The study of rhetoric in ancient Greece and Rome, for instance, concerned how a person can use the speaking voice, well-chosen words, and other public speaking techniques to persuade his audience to follow his political opinions. I use the masculine gender because women did not enjoy the political privileges of citizenship in ancient Athens or Rome. For another example, Dale Carnegie courses in public speaking and the member clubs of Toastmasters International provide opportunities even today for the budding public speaker to learn how to communicate effectively in a variety of situations through the speaking voice. These approaches to the problem of public speaking suggest that the characteristics of the audience do not play a role in the outcome of the speaker's presentation. Like rats in a maze, the audience

responds but does not process.

Inspired by that theory, I planned an experiment based on manipulating the voice of one speaker in a social interaction. At first, the project seemed simple enough; just redo what Scherer, Rosenthal, and Koivumaki did, and nothing could go wrong. Alas for me, however, taking up this topic would prove to be a technical challenge that tested my experience in producing audio and video cassettes to its limits and beyond them.

II. Plan of this Thesis

This first chapter of the thesis continues with a statement of the theoretical problem that this research will address, followed by a description of the research objective to be achieved by this research. The second chapter offers an examination of the theory of symbolic interactionism and how Goffman's (1959) extension of Mead's (1934) original theory could make it relevant to studies of emotions and affect in social psychology. This is followed by a presentation of some studied that did not explicitly use Erving Goffman's study of self-presentation (1959) to guide their analysis, although the studies are integrated with that work at the end of the chapter. The third chapter presents my proposal to apply the theory in an actual experiment meant to study self-presentation in a social setting. The fourth chapter discusses the methods I used to develop the experiment. This includes how I prepared my independent variables, selected my dependent variables, decided upon my control variables, and measured the effects of all of these variables taken together. Chapter Five provides the reader with the results I

obtained from this experiment. These results range from simple, univariate descriptive statistics about the variables I used in that analysis to the more complex results that allowed me to make certain conclusions about what I had accomplished in this experiment. Chapter Six offers a discussion of the results obtained from this study, suggesting why there is a real role for the response of the listener to a spoken communication. Finally, Chapter Seven integrates the results of this study with the theory presented in earlier chapters.

III. The Theoretical Problem

"Don't you know sarcasm when you hear it?" This question has been asked many times in many social situations. There are three problems with this question: 1) it assumes that the role of the speaker's face can be ignored in studying how we communicate affect; 2) it assumes that the speaker can imply a given affect through the use of the voice; 3) it assumes that listeners process the presentation of affect by the speaker in a uniform manner. Recent research in the social sciences has suggested that not one of the three assumptions can safely be made, as I will show later. Here are some better questions to ask: "What does the listener do in responding to the vocal cues used by the speaker during a speech act?" "Can the face and the voice of a speaker suggest unclear or even inconsistent meanings for a given speech act?" "What ways are there in English for me to use my voice, and perhaps my face as well, to suggest that what I am saying is not necessarily what I wish to communicate?" Questions such as these are the ones to which this thesis will provide the beginning of an answer.

The theoretical framework within sociology from which this thesis will proceed begins with the work of George Herbert Mead. Mead (1934: 280-289) argued that the study of universal social processes, such as religion and economy (and politics, I might add), is the real task of sociology. Mead argues that the way to advance sociology as a science that researchers can use is to think of social institutions and phenomena as processes. The processes are sociological because they are a function of that form of communication which involves selves (your self and that of at least one other person) communicating through shared significant symbols. Herbert Blumer (Hetherington, 1995) described the communication as an interaction done through symbolic means and thus named Mead's theory symbolic interactionism. The symbol becomes significant when it provokes behaviour in the receiver of the symbol that cannot be explained in terms of a pure relation between stimulus and response, which shows that Mead's concept of social behaviourism is necessary to explain that behaviour. I will say more about this in Chapter Two. In turn, this communication of significant symbols between selves who respect each other's subjectivity is the micro sociological foundation for what Durkheim called the conscience collective of a society (Coser, 1977: 132).

Extending Mead's work on the significant symbol in The Presentation of Self in Everyday Life, Erving Goffman (1959: 2-4) distinguishes expressions given, the performer's intentional communications, from expressions given off, described by Goffman as " ... the more theatrical and contextual kind [of communication], the non-verbal, presumably unintentional kind, whether this communication be purposely

engineered or not." Now, because expressions given off are presumed to be unintentional, they are presumed to represent whatever actual feelings the communicator may have about his or her current situation more faithfully than expressions given. Therefore, the audience tests the credibility of the performer's presentation by comparing the performer's expressions given against expressions given off by the performer.

The audience compares the performer's expressions given against expressions given off by the performer in search of inconsistency in the performer's self-presentation. When comparisons of this kind occur within the setting of a political campaign (the tool voters use to select the person they are prepared to trust with the authority to enforce order in their society), the voting public (the audience for the relevant presentation) looks for inconsistencies in a candidate's performance in order to make a more informed decision about whether to vote for or against a performer on election day and thus effectively to accept or reject his or her efforts to persuade the public that he or she can effectively govern the society. Thus, although Goffman (1959: 65-66) can say that it is not clear whether the impression that the performer fosters (through expressions given) or the one he wants to keep the audience from receiving (through control of expressions given off) is the real impression of that social situation, the ultimate outcome of the performance is in the hands of audience members who will concern themselves with whether a performer's expressions given off are or are not consistent with the performer's expressions given. Where these expressions given off are in conflict with the political performer's expressions given, for the same reasons that apply to other cases where a performance is discredited, the interaction between performer and audience will break

down into embarrassment for the performer that could provoke anomie (Goffman, 1959: 12). This approach suggests a treatment of social interaction in terms of cognition only; the role that emotion can play in Goffman's theory of interaction will be demonstrated in Chapter Two.

To examine the micro social process by which macro social order is constructed and maintained (thus preventing anomie), a social scientist can examine how reliable the speaker's face and voice are as separate means of communicating various kinds of information. The social scientist can also study the ways in which social actors use facial and vocal gestures apart from the actual words spoken to communicate a meaning for their utterances that is not always the meaning that the words suggest. Further, the sociologist may examine how the listener decides which meaning--which one of the different possible and plausible meanings for the set of facial, vocal, and linguistic gestures that the speaker just offered--should be used to interpret the speaker's overall speech act. This third way of examining the topic will play an important role in the results of the experiment that underlies this thesis.

IV. Research Objective

The research mentioned in the last section will serve as a preliminary examination of how a research subject's opinions on a particular topic before a given presentation, the opinions on that topic that the subject is receiving during the presentation, and the ways in which the subject processes the emotions he or she felt as a result of that presentation all affect the subject's overall reaction to the presentation. Does each factor have an

effect independent from the other two? What features of the emotional presentation affect the subject's reaction to it, and do they differ as a function of the presenter? Questions like these are what this thesis may begin to answer. The first step in answering these questions is to examine the theory that underlies this topic.

Chapter Two: Social Studies of Emotion in Symbolic Interactionism, in Theory, in Practice, and in the Thesis Experiment

I. Symbolic Interactionism and Social Emotion

Symbolic interactionism, as a perspective in sociological social psychology, began with a challenge of the behaviourism we associate with Watson; the challenge suggested that the social lives of higher animals could not always be explained in terms of stimulus and response. George Herbert Mead (1934) devoted much of Mind, Self, and Society, his book on what he called social behaviourism, to defining and explaining the significant symbol. Non-significant symbols in social interaction provoke a response in the receiver that complements the response of the giver, such as the responses of each dog to the other in a dog fight. The significant symbol, in contrast, provokes the same response in both the giver and the receiver of that gesture and thus provides evidence for social communication that transcends the Watsonian relationship between stimulus and response. Mead's quarrel with orthodox behaviourists (like Watson and Skinner) prevented him, perhaps, from studying socially communicated emotions in the same way he studied socially communicated cognition.

Mead's work argued that external, observable social processes were processed through language as shared symbolic communication (the conversation of gestures) before they entered internal consciousness; this meant that the black box inside a person's head was explained by Mead's theory rather than an explanation of something else (an approach which Watsonian behaviorists will never accept). This processing makes social communication an origin for cognition; was it possible to study the idea that social

communication was also an origin for emotion? Erving Goffman (1959) showed how it could be done in The Presentation of Self in Everyday Life, although he did not study socially communicated emotion in that book. Like Mead, Goffman devoted most of his book to aspects of social cognition that could be observed in social interaction; unlike Mead, Goffman paid attention to their external and socially observable manifestations rather than their representations in consciousness.

Goffman examined the distinction between expressions given and expressions given off in The Presentation of Self in Everyday Life. Expressions given are those which the speaker uses to communicate significant symbols (1959: 2) and to directly control the definition of the situation that an audience is developing (1959: 3-4) and thus to control the audience's response to the speaker. Expressions given off are defined by Goffman (1959: 4) as ". . . the more theatrical and contextual kind [of communication], the non-verbal, presumably unintentional kind, whether this communication be purposely engineered or not." Expressions given off are presumed by the audience to represent the actual feelings the communicator may have about the current situation and thus are used by the audience to validate the credibility of the performer's presentation; a performer's expressions given are expected to agree with expressions given off by that performer.

Tory Higgins' 1980 paper on the "communication game" extends Goffman's thought on the competitive nature of social interaction by using concepts from game theory to represent how social interactions are organized; Higgins used the phrase "communication game" to suggest that communication is a purposeful social interaction within which each participant is governed by rules and is able to influence, but not to

control, the outcome of the interaction for all participants (Higgins, 1980: 346-347). For example, Recipients' Rule 2 notes that "[r]ecipients should determine the communicator's original intent or purpose", Recipients' Rule 5 states that "recipients should try to understand the message", and Recipients' Rule 6 states that "recipients, when possible, should provide feedback to the communicator concerning their interpretation or understanding of the message" (Higgins, 1980: 348). The paper on human lie detection by DePaulo, Zuckerman, and Rosenthal (1980) illustrates these rules in action. Communicators' Rule 6 (Produce a situationally appropriate message) and Communicators' Rule 7 (Produce a message appropriate to your purpose) are examined in studies of vocal and facial components of the message, including many studies mentioned in this chapter. Recipients' Rule 1 states that recipients should take the source's characteristics into account when they listen to a message; Communicators' Rule 1 states that the communicator, in turn, should take the recipients' characteristics into account when he or she presents the message. The study by Howard-Pitney, Borgida, and Omoto (1986) presents what happens when recipients obey their Rule 1 (by noting that the source does or does not want the drinking age in Minnesota re-raised from 19 to 21) and the communicator cannot obey his or her Rule 1; the recipient has control over whether to accept or reject the communicator's message and thus the game falls apart.

Higgins' paper is a social study of emotion in Goffman's manner because, like Goffman's work on the competitive nature of social interaction (Goffman, 1959: 11-12), Higgins' work can be applied to communication of affect in the same way that it is applied to communication of cognition. Because Goffman's theory is so important to my

research topic, it will be discussed in more detail in the chapter on empirical application. For now, however, note that the concept of a communication game also draws heavily on the insights of Erving Goffman (1959: 3-7) on the relationship between the performer and the audience, or the communicator and recipient, in a social interaction.

Where Higgins's work on the communication game extended Goffman's thought on the competitive nature of social interaction, Arlie Russell Hochschild pursued Goffman's thinking about the expressive component of social interaction. Hochschild's (1983) book The Managed Heart applied Goffman's (1959) work on self-presentation to the situation of a customer service employee in a formal organization. Her contribution to the relationship between symbolic interactionism and social emotion comes from the attention she paid to the plight of trainee flight attendants as they learned to prevent their emotional expressions of customer service from conflicting with the cognitive expression of that service for the sake of the overall impression fostered by the airline in question (the idea was to avoid giving off any expression that might conflict with the impression fostered and its set of expressions given). Hochschild's book realized the potential in Goffman's variety of symbolic interactionism to study social emotion.

The relationship between performer and audience, mediated through expressions given and expressions given off, can be real in its consequences for a given society. When a comparison like this occurs within the setting of a political campaign (such as the one between Turner and Mulroney), the audience for the relevant presentation--the voting public--has the power to vote for or against a performer on election day and thus effectively to accept or reject that performer's efforts to persuade the public that he or she

can effectively govern the society. Thus, although Goffman (1959: 65-66) can say that it is not clear whether the impression that the performer fosters (through expressions given) or the one he or she wants to keep the audience from receiving (through control, wherever possible, of expressions given off) is the real impression of that social situation, the ultimate outcome of the performance is in the hands of audience members who will concern themselves with the performer's expressions given off at least as much as they will with the performer's expressions given. Where these expressions given off are in conflict with the political performer's expressions given, for the same reasons that apply to other cases where a performance is discredited, the interaction between performer and audience will break down and thus lead to embarrassment for the performer and maybe (in the worst case) even to anomie for the audience (Goffman, 1959: 12).

The study of social emotion within the perspective of symbolic interactionism was taken to the theoretical level when Neil MacKinnon (1994) published Symbolic Interactionism as Affect Control. MacKinnon's book offers a theoretical integration of social cognition and social emotion in the subject's use of significant symbols; all other work on the integration of social cognition and social emotion was in the form of empirical case studies. Osgood, Suci, and Tannenbaum (1957) studied the meanings of words to create the concept of the semantic differential (two words of opposite meaning, one at each end of a rating scale; the thesis experiment will use this scale to measure an audience member's cognitive appraisal of the emotional activity of the performer). From this, Heise (1988) developed affect control theory as a way to integrate affective and cognitive processes. The affect control theory of MacKinnon (1994: 15-18), when placed

within symbolic interactionism, suggests that the connotative function of language is the resource that allows social affect to enter what otherwise would be a dry exchange of social cognitions through the medium of language between the participants. Once affect enters the interaction, it gives subjects another source of feedback about their social performance in addition to cognition. Indeed, MacKinnon (1994: 41-50) argues that any attempt to separate the roles of cognition and affect in human consciousness is tantamount to saying that there can be an answer to the question of whether the chicken or the egg came first. In other words used by MacKinnon (1994: 67), affect complements cognition in the observable social act in ways that Mead as a social behaviourist could not think were possible.

To summarize this section, only recently has symbolic interactionism begun to study the phenomenon of social emotion. Mead's original theory of symbolic interactionism had to be modified by Goffman's work on social self-presentation in order to make the study of social emotion possible. In turn, Hochschild developed Goffman's work into a practical study of emotional self-presentation in a social context. Finally, enough practical data became available for MacKinnon to develop Heise's theory of affect control so that it could be used to study the social process of affect within the theory of symbolic interactionism.

As the title suggests, this chapter has four main topics. The first topic was the relation between the perspective of symbolic interactionism and the study of social emotion over the course of this century. Theories in the social psychology of emotion will be presented next. Third, experiments which used various methods to study emotion

will be presented in order to illustrate some interesting conclusions about how emotion is studied in social psychology today. Finally, this thesis will describe how it proposes to integrate its experiment with social studies of emotion in symbolic interactionism.

II. Social Studies of Emotion in Theory

An old and popular theory in the social psychology of emotion states that three basic variables are sufficient for a social scientist to classify all the emotions that a person can feel. Osgood, Suci, and Tannenbaum (1957) argue that these basic variables, or dimensions of affect, are valence (hedonic tone, or whether the emotion is a good or bad feeling from the point of view of the person who experiences it), arousal (the subject's psychological motivation to evaluate the experience that provokes a given feeling), and potency (the effect of the experience upon the subject's person compared with that of the subject's environment upon him or her, roughly comparable to a signal-to-noise ratio; does the experience make the subject feel different and, if yes, to what extent does it do so?).

In contrast, Tomkins (1991) has argued that the public's use of separate terms for each one of a variety of emotions does represent something more than ignorance of the dimensions of affect approach to emotion. Tomkins' approach, based on Darwin's argument that each discrete emotion contributes to the animal's ability to survive and reproduce in much the same way that other adaptations to the environment do so, has inspired psychologists like Paul Ekman to think of discrete emotions theory as the basis for advancing the study of affect in psychology. On the other hand, Tomkins' own theory

does not exclude the dimensions of affect approach to the study of emotion; he offers a possible basis for the dimensional approach in terms of levels and variations in the rate at which neurons fire in the brain.

The thesis experiment requires a tool for the measurement of subjects' responses, as opposed to the classification of them; this is why this thesis uses the three-dimensions-of-affect theory of emotion as the basis for its dependent variable. Other recent work also follows this procedure, such as the work MacKinnon (1994: 18) did on the integration of affect control theory with symbolic interactionism. By using the phrase basis for its dependent variable, I mean that other theories about emotion measurement may use different categories from valence, potency, and activation or may use a rotated solution from a factor analysis to represent the three concepts while keeping the three basic categories of emotion measurement and still adhering to the dimensional approach as the way to understand the evolutionary function of emotion. From the cognitive point of view, discrete emotions are prototypical in the life of the child and only later are the emotions grouped on dimensions of affect. In practice, the categories of valence, potency, and activation that were first developed by Osgood, Suci, and Tannenbaum (1957) have been supported since then in a variety of studies (including Cacioppo, Petty, and Andersen, 1988; Heise, 1988; and Teasdale and Barnard, 1993).

III. Social Studies of Emotion in Practice

The natural attitude among social psychologists, as it is among other social scientists, is a belief that experiments determine causality in a relationship between social

phenomena. Some social scientists may say that the experimental method is not always the best test of cause and effect in studying emotional responses (Ekman, Friesen, and Ellsworth, 1982, suggest that experiments using still photographs taken at a convention yield conclusions that do not apply to a candidate's public performance; Cacioppo, Petty, and Andersen, 1988, argue for a social role in explaining how the mind and body deal with emotional experience; Mirowsky and Ross, 1989, 66-74 offer a sharper attack on how far you can generalize experimental method in the study of emotional response), but experimental methods are still seen as the best way to control for other possible causes of the subject's reaction to a given stimulus and thus cannot be replaced. Two basic sources of stimuli have been used in studies of subjects' emotional reactions to a presentation: some have used facial expressions while others have used vocal expressions to present emotional stimuli to the subjects.

The use of facial expressions as experimental stimuli was first proposed by Sylvan Tomkins (1962, 204-242). Tomkins (1962, 235-242) recommended the use of facial expressions because they were based on a systematic association between the muscles of the face of the presenter and the emotional responses of the subject. While reading the work of Tomkins (especially Tomkins, 1962, 211-224), I noticed that Tomkins' study of facial expressions could easily link Mead's conversation of gestures (the basis for symbolic interactionism) both to physiological phenomena and to social emotions (such as shame).

Facial displays may be reliably associated with emotional expressions of the presenter and thus, in turn, with the emotional response of the subject. However, that

begs the question of what kind of response the subject offers. For example, Sullivan and Masters have recently concluded that social scientists do need to pay attention to the affective and cognitive processes that mediate between the presenter's facial display and the subject's eventual emotional or affective reaction to that display; moreover, those processes may not clarify the relationship between a candidate's behaviour and how people feel about the candidate, and thus may not explain whether voters will vote for that candidate on election day.

The conversion of Sullivan and Masters to this conception of the problem regarding a candidate's self-presentation shows an interesting progression in their thinking. Sullivan and Masters (1988, 345-364) once published a paper suggesting that the Democratic Party lost the 1984 election for President of the United States because it chose Walter Mondale as the man to try to defeat Ronald Reagan. Mondale was the one candidate in the Democratic field whose happy smile could not make anyone else feel happy during the election campaign because it deviated so far away from the ideal "happy smile" of Ekman's Facial Action Coding System (Ekman and Friesen, 1982) as to seem somehow unreal; meanwhile, Reagan's smile remained as winning as always (to summarize the conclusions in Sullivan and Masters, 1986: 358-360). Their later work, however, suggested that the voting public's interpretation of Mondale's smile could have been as much a cause of Mondale's defeat as Mondale's smile itself; Masters and Sullivan (1993: 150-182) repeated their study during the next presidential election campaign with more and different research subjects and found that people have different ways of processing information from the candidate's facial expressions as a function of

their social background. Clear self-presentation of one's own emotions remains an important part of a candidate's attempt to persuade the public to support him or her on election day, but this has to be done within the context of voters' prior attitudes toward the candidate and the current political situation in the given society in order to affect the voters' feelings for or against the candidate and their judgments regarding how strong they believe the candidate to be. In other words, the research subject brings personal and social factors to the experiment for which the experimenter must provide statistical controls.

Studies of the role of the speaking voice in affecting the reactions of research subjects to another person go back to a paper published by Scherer, Rosenthal, and Koivumaki in 1972 on the role of manipulations of speaking volume during the presentation to research subjects of someone else's biography. The results that Scherer's team obtained led indirectly to work by Robinson and McArthur in 1982 on the relationship between volume of the voice, sex of the speaker, and sex of the listener in explaining how subjects judge the competence (a blend of potency and valence in the modern theory) of a speaker. Further work on the role of situational and subjective factors in a subject's response to the speaking voice was done by Howard-Pitney, Borgida, and Omoto in their 1986 study regarding students' reactions to a proposal to re-raise the drinking age in Minnesota from 19 to 21 years old as a function of a mock televised debate on the proposed change; their findings suggested that the placement of the speakers relative to the television camera interacted with subjects' own interest in the topic of the debate to explain the results they obtained. DePaulo, Zuckerman, and

Rosenthal's 1980 study of humans as lie detectors took the analysis of listener-specific factors in communication a step further by making those factors the object of their analysis; their conclusion was that it was harder for subjects to find the truth about, or true feelings of, the speaker than to simply recognize that they were being deceived by the speaker. Most recently of all, Gregory, Dagan, and Webster (1996) have taken the study of the role of the voice in social communication beyond vocal communication of affect to the study of how the fundamental frequencies of two persons' speaking voices play a role in their accommodation to each other and in how third parties respond to their interactions; their conclusion suggested that listeners' ratings of how happy the speaker made them feel could be reduced quite dramatically if the listeners were not allowed to hear the fundamental frequency band of the speaker's voice. In sum, studies of the role of the voice in the communication of fact, opinion, or emotion have been forced in practice to accept a significant role for the research subject as an active listener to that communication.

IV. Social Studies of Emotion in the Thesis Experiment

To introduce this final section, this thesis will consider the topic of the leadership debates associated with the 1988 Canadian federal election, which featured then-Prime Minister Brian Mulroney of the Progressive Conservative Party, then-Opposition Leader John Turner of the Liberal Party, and then-New Democratic Party leader Ed Broadbent. The Opposition Leader had not performed very well in earlier debates during the campaign and thus had to do a better job during the debate to be held on October 25,

1988. The dissertation by Agrios (1994, 168-171) that pertains to those debates notes that Henry Comor helped Turner prepare himself for the last set of leadership debates during the 1988 Canadian federal election campaign; Comor's special area of expertise was the role of television in a candidate's performance. Comor noted that some of Turner's behaviours on the podium were not helping Turner portray himself effectively for a television audience. By changing them, Turner could foster a coherent impression of an effective political leader in time for the critical debate against Mulroney on October 25, 1988.

To conclude this chapter, let me provide a conceptual explanation here about how this thesis will use an experiment to generate a social study of emotion. In terms associated with Goffman (1959), this experiment will create a deliberate discrepancy between a performer's expressions given and that performer's expressions given off. In the terms of Tory Higgins' "communication game", the experimental manipulation will disrupt a communicator's ability to follow both Communicators' Rule 6 and Communicators' Rule 7 as mentioned on page 9 above while the dependent variable in the experiment provides the recipients with the chance to follow Recipients' Rule 6 on page 9 above. In the terms of Agrios (1994), the thesis experiment will test whether what Comor did to improve Turner's television debating style provided a sufficient condition to ensure a successful result for Turner. Comor's actions were a necessary condition for ensuring that Turner achieve a successful result in the debate of October 25, but would these actions have ensured the same result if other features of Turner's presentation (such as his speaking voice) were also altered? Finally, in the terms of the book by MacKinnon

(1994) on the relationship between affect control and symbolic interactionism, the thesis experiment will manipulate a performer's presentation in order to examine the effects of that manipulation on the social cognition and social emotion of audience members who listen to that presentation. A more detailed explanation of what the experiment is going to do will be presented in the next chapter, on the topic of testing the theory empirically.

Chapter Three: Testing the Theory Empirically

I. The Theory to be Tested

The theory to be applied to the topic of this thesis is derived, as mentioned in earlier chapters, from early work by Erving Goffman (1959: 3-7) on the relationship between the performer and the audience in a social interaction. Goffman argues that this relationship is competitive (hence Higgins' "communication game") within the restriction that neither side wishes to provoke a collapse in their shared definition of the situation. On the one hand, the performer tries to affect the definition of the situation that the audience is formulating by presenting himself or herself, consciously or unconsciously, in an appropriate manner. On the other hand, audience members try to test the validity of the performer's portrayal by comparing those aspects of the portrayal that the performer cannot easily control ("expressions given off", as Goffman calls them) against those that the performer can easily control (Goffman calls these "expressions given"). The audience is prepared to disbelieve the source of the communication if the expressions given and expressions given off conflict with each other because this conflict is evidence that the communicator has violated the rule that all aspects of the message should be appropriate to the purpose of the communicator (compare Goffman, 1959: 4-7 with Higgins, 1980: 373-375). Goffman's theory does permit the performer and the audience to be emotionally as well as cognitively involved in a social interaction (compare Goffman, 1959: 12 with Goffman, 1959: 7); the purposes of a sociological social psychology are better served by measuring what happens to members of the audience in the interaction

after manipulating certain characteristics of the speaker's voice. Indeed, a later chapter of this thesis will suggest that the results of the thesis experiment can be best explained by focussing on the responses of the audience in a social interaction.

The next logical question to ask, then, is "What does the audience do in response to the speaker's performance?". An answer to that question begins with the individual audience member: Petty and Cacioppo (1986) argue in their Elaboration Likelihood Model of an audience's response to persuasive communication that if an individual member of an audience has the motive and the opportunity to process the main arguments for and against a course of action, and if the arguments pro and contra balance each other, then the recipient of the arguments will draw on peripheral cues (in other words, the expressions given off by the communicators) to provide more information. When the recipient (if he or she both wants to and is able to re-process the argument of both sides with the extra information of the peripheral cues) does re-process the original arguments, a peripheral and temporary attitude change about the issue may become an enduring and central change in the individual's attitude toward that issue. (The thesis experiment will prevent the process from proceeding beyond this point.) The second step in Petty and Cacioppo's process is for the individual audience members to confer with each other about the arguments presented and the members' responses to those arguments ("Did you see what I saw?" "You bet I did!"). As the members confer, the audience's collective definition of the situation emerges. Finally, once the situation is defined as real (in W. I. Thomas's famous adage), it is real in its consequences for everyone affected by the new construction of social reality (Hetherington, 1995). Of course, the consequences can be

very easy to observe in the wider society.

The Elaboration Likelihood Model presented in the previous paragraph resembles the theory of symbolic interactionism, but differs from it by assuming that the audience member is keeping his or her emotions away (for all practical purposes) from the cognitive process of examining the arguments of and expressions given off by the speakers. What happens when the audience's emotional involvement in the presentation is something not to be explained away but rather to be explained is the subject of Birbaumer and Ohman's 1993 work on affective response theory (especially in Birbaumer and Ohman, 1993: 6-9). Affective response theory provides for a hierarchy of affective responses that the audience member can call upon according to the arousal created by the provoking stimulus (extending the point made in Goffman, 1959: 12 about what happens when an individual's performance has been discredited). This hierarchy includes the following responses: affective responses only for weak stimuli; affective and behavioural responses for moderate stimuli; affective, behavioural, and physiological response for a strong stimulus. When this model of the audience's emotional involvement in an interaction is fitted into the gap in Goffman's framework about the involvement of the audience in an interaction, Goffman's theory can confront the significance of the significant symbol (as in the discussion of "manner" in Goffman, 1959: 24; compare Mead, 1934: 71) in a more comprehensive manner. To state the important point of this paragraph, however, Birbaumer and Ohman's affective response theory describes how the audience member can include an affective response as a possible part of his or her overall response to a speaker's presentation and thus extends Goffman's theory (once again,

compare Goffman, 1959: 12 with Goffman, 1959: 7) toward a richer understanding of the role of the audience member as a respondent to a speaker's presentation.

To summarize this section, Goffman's 1959 work on how people present themselves in day-to-day social interaction does offer a more complicated theory about the relationship between what the performers bring and what audience members bring to a social interaction than the models that social scientists have previously used in studies of the communication of emotion. As mentioned in the previous chapter, however, studies on the communication of emotion through both the face and the voice have come to the conclusion that the opinions which audience members hold about the topic in question before the study must be treated as variables in the research equation and thus as variables in any eventual statistical analysis of that equation; social scientists have found that leaving those opinions out of the analysis simply does not work. The conclusion, given these premises, is that a more complicated theory about what the performer (on the one hand) and the audience member (on the other hand) bring to a social interaction may be what social scientists need if they seek a more effective explanation of how affect actually works in a social interaction. Thus, Goffman's theory is now worth testing.

II. How The Thesis Experiment Tests It

The experiment at the core of this thesis involves the deliberate creation of a situation in which someone's performance is discredited according to the description Goffman (1959: 12) offers about what can provoke such a result. The situation in question is a repeat showing of a debate that took place on October 25, 1988 during the

Canadian federal election campaign of that year between the Progressive Conservative Party (led by then-Prime Minister Brian Mulroney), the Liberal Party (led by then-Opposition Leader John Turner), and the New Democratic Party (led by Ed Broadbent). My prediction at the time I did that experiment (a prediction based on the theory that a minimal and simple process links a performer's presentation and the response of the audience to that presentation) was that if the voice of John Turner, speaking during the debate of October 25, 1988 with Mulroney, were systematically altered during a repetition of that debate in order to create a discrepancy between his facial and verbal expressions given and his vocal expressions given off, the result for "Turner" should not turn out as well as the result that Turner actually obtained during the debate that night. I proposed to use the results of a questionnaire administered to the research subjects only after the debate to support my conclusion about changing Turner's voice. I thought that replicating a design with one experimental group and one control group across each of two classes would obviate the need for a test before the presentation of the experimental stimulus. I did not attempt a full replication; in one class, the students listened to the experimental stimulus first while the students in the other class listened to the control stimulus first.

Before my hypothesis is tested, it is helpful to know more about the debate of October 25, 1988. Agrios (1994: 271) mentions that John Turner of the Liberal Party clearly defeated both Ed Broadbent of the New Democratic Party and Brian Mulroney of the Progressive Conservative Party in that critical leadership debate. The decisive event in that debate was the duel between Turner and Mulroney in Round 3 of the debate over

the issue of the Canada-United States Free Trade Agreement; Mulroney's admission that the agreement was a commercial document that could be cancelled on six months' notice for any reason gave Canadians an invitation to re-process the arguments for and against the deal (in accordance with the Elaboration Likelihood Model described earlier in this chapter) with the peripheral cue that Mulroney does not think the agreement is that important in the final analysis (Agrios, 1994: 199-210 goes into more detail on this exchange, based on the debate transcript in Agrios, 1994: 349-353.). Perhaps Mulroney had expected Turner to make a mistake in self-presentation like ones Turner had done in leaders' debates during the 1984 Canadian election campaign. (Goffman, 1959: 3 says that skilled presenters attempt to control symbols that are alleged to be expressions given; Turner may not have taken this action during previous bouts with Mulroney.) In that case, Mulroney must have been surprised at Turner's new style (Agrios, 1994: 202-208).

Turner's new style was possible because performers in a social interaction do have some ability, contrary to the common-sense beliefs of the audience, to control the expressions they are giving off. Indeed, Agrios (1994: 168-171) provides a detailed description of the changes that Henry Comor (Turner's English-language debate coach) made in Turner's television style (and thus in the expressions that Turner would give off during the debate) for the night of October 25. By using those techniques, Turner learned how to prevent his visual message from conflicting with the vocal component of his presentation; remember Goffman's remarks about what the audience can do to a performance if the performer's expressions given off are inconsistent with expressions given during that performance. The result of that night's debate was that John Turner,

despite being significantly behind Brian Mulroney in public opinion polls until the debate of October 25, 1988, performed well enough that night to earn a tie with Mulroney in public opinion polls that persisted during the next three weeks of the campaign until Mulroney pulled ahead to stay during the last week before election day (Agrios, 1994: 75). All the references to what Turner did differently for the night of October 25, 1988 leave me with one question: if Turner's voice had sounded a little bit different on the night of October 25, 1988, would that unusual voice have undone what Henry Comor had tried to accomplish in preparing Turner for the night's tilt with Mulroney? Chapter Four will show how I planned to answer that question.

Chapter Four: Research Design and Methodological Issues

This chapter is organized in three sections: the first section presents the setting of this experiment; the second section illustrates the assumptions and issues that underlie its design; the third section describes the preparation of the independent, control, and dependent variables that make up the experiment itself.

I. The Experimental Setting

The thesis experiment is based on what Campbell and Stanley (1966) call a posttest-only control group design with two control and two experimental groups. Other possible designs were examined for the purposes of this thesis. Although they were not used in this experiment, other possible designs will be discussed in Chapter Six under the heading "Implications for Future Research".

In this experiment, random assignment was accomplished by shuffling two "versions" of the questionnaire; this really meant that subjects who got version "A" were in the one treatment condition while those who got version "B" were in the other condition. This allowed a "posttest-only control group design" (Campbell and Stanley, 1966, 25) to be used as the basic design of the experiment. This design was run twice, once each in class "1" and class "2", to repeat the experiment while controlling for the order in which the treatment conditions were presented.

Table 4--1 shows that the first group in class 1 heard the control cassette (Mulroney's voice followed by Turner's real voice), the second group in class 1 and the

first group in class 2 (the second and third groups to participate in the experiment) heard the experimental cassette (the voice of Mulroney followed by Turner's voice deliberately changed; the procedure is described on page 30 of this thesis in the section on operationalizations), and the second group in class 2 (the fourth group to participate in the experiment) heard the control cassette. When the first group from a class participated in the experiment, the second group from that class was asked to leave the room until the first group had heard the cassette and returned its answer sheets and questionnaire booklets; after that, the first group was asked to leave the room and the second group had its turn to be part of the experiment.

Table 4--1: Experimental Design

Group Number (according to when it heard the excerpt)	Class Number (according to when it was in the experiment)	Mulroney's Voice	Turner's Voice	Treat. Cond.
1	"1"	Normal	Normal	Control
2	"1"	Normal	Altered	Experi-mental
3	"2"	Normal	Altered	Experi-mental
4	"2"	Normal	Normal	Control

The procedure described on the previous page kept the subjects in groups 1 and 3 from changing their answers after the fact or from contaminating the subjects in groups 2 and 4; precautions like these must be taken for the researcher to keep control of the experimental design.

II. Experimental Design: Assumptions and Issues

The assumptions which underlie the experimental design in this thesis are central to why I chose this unusual method to test a theory based on symbolic interactionism and Goffman's self-presentation theory. Usually, research on this theory is done using field research methods (such as the study Goffman did on Shetland Isle that played a part in his 1959 book). As a result of previous research, however, this thesis was about to test whether or not certain changes in a performer's vocal self-presentation caused changes in the response of the audience to the performer; such testing requires the use of the experimental method.

The experimental setting is the one situation within which the researcher can conclude, within the limits of the laws of chance, that the independent variable was the cause of any change that resulted in the dependent variable between the treatment and control conditions. This is so because only in the experimental setting can the independent variable always be presented before the dependent variable is measured. This makes a statistical analysis of the results obtained that much easier, for the causal priority in this situation is clear.

A second feature of the experimental design is that (within the limits of the laws of probability) all characteristics, known and unknown, of the research subjects are distributed at random across the experimental and control conditions. Thanks to this, the possibility that other variables may confound the relationship between the independent and the dependent variables is eliminated (in other words, spurious causal relationships

are avoided). Do not confuse the ability of the experimental method to eliminate confounding variables with its ability to examine more than one potential cause of the dependent variable, however.

A number of variables (presumed to be causes of the dependent variable) are included in the current research. To remain consistent with the literature on experimental designs, these other variables will be referred to as "covariates". Adding covariates into the experimental design has three benefits. First, they increase the power of any statistical test by reducing the standard error of the estimate. Second, they enable us to see whether they operate as intervening variables that mediate between the experimental manipulation and the dependent variable. Third, covariates may be involved in interaction patterns with the primary manipulation which will make the relationship being defined more precise. That is, they can condition the effect of the experimental manipulation. As such, they are extremely useful to the researcher because they identify the specific conditions under which the experimental manipulation (or the covariate) affects the dependent variable.

Covariates can, however, also complicate an understanding of the "causal" process, since extreme instances of specificity are gained at the expense of the ability to generalize results obtained. But the tradeoff between the abilities to specify and to generalize occurs in our ability to predict the results of future experiments and should not be interpreted as obscuring the causal process in the present experiment.

In an earlier chapter, I mentioned some limitations of the experiment as a research method and how they applied to the study of facially and vocally presented emotions.

Once again, a common critique of the experimental method suggests that the results obtained from the artificial environment of an experiment on emotion are hard to generalize to the social world beyond the experiment. The rebuttal to this critique would argue that what the experiment hopes to apply elsewhere is not a particular set of results but a more general matter such as the theoretical position being supported or the set of constructs being measured.

A second disadvantage of the experimental research setting concerns the achievement of construct validity for the experimental manipulation. In the setting of this thesis, does the way the experimenter alter the voice, or present the face, in the stimulus condition really replicate the way a vocal expression changes, or facial expression is experienced, in the social world when someone is expressing a given emotion? The danger is that the artificial manipulations in the experimental setting may inadequately capture the realism and breadth of the subject being examined, leading to false conclusions about that subject or even create results (artifacts of the experimental method) which would not have occurred in the natural world. This is my own critique of what Sullivan and Masters (1988, 345-364) did when they showed subjects what looked like the single best available "happy smile" for each candidate culled from videotapes of the various contenders in the 1984 election for President of the United States; Mondale's apparently less-than-genuine "happy smile" could be the artifact of a theory that does not allow for individual differences in how we smile and an experiment which presented the smiles to research subjects without a context for the smiles.

The thesis experiment attempted to avoid this problem by using vocal instead of

facial manipulations. Vocal manipulations based on the actual voices that Turner and Mulroney used that night and which apply through the duration of the utterance would, by virtue of their setting in a context and their continuous nature, largely avoid the problem in the experiment by Sullivan and Masters. On the other hand, it is possible that negative results (no significant effect of the experimental manipulation) can also be an artifact--an artifact of an experimental manipulation too weak to be different from no manipulation at all (this problem applies to the use of a graphic equalizer to attempt to manipulate the voice for the experimental condition). However, generating a manipulation strong enough to use in an experiment like this would create a new problem for the experimenter--a problem in the production of the stimulus cassette. The method by which these changes were produced is the subject of the next section.

III. Operationalizations

A. The Stimulus Cassette

The independent and control variables for this experiment were prepared by dubbing the excerpt to be used onto an audio cassette from a video cassette, patching only the sound across for obvious reasons. Subjects in the control group listened to that excerpt dubbed straight onto the stimulus tape. Subjects in the experimental group, in contrast, heard first Mulroney's real voice from that night and then an altered version of Turner's voice; the pitch of Turner's voice was deliberately raised by two semitones.

The manipulation of Turner's voice began with a sample of Turner's actual voice from the excerpt. The sample was digitally recorded into the free memory of a computer

software package made to work with recorded sound. The package uses a microcomputer to simulate a recording studio, so it accepted the sample onto one of its virtual tracks. Once the sample was on a virtual track inside the computer's free memory (1 MB or about 24 seconds of recorded sound could be worked with at a time), the sample could be altered using a two-step process. First, the software pack's pitch-shift command was used to raise the pitch of the sample by two "steps" (one step=one semitone); this value was determined through trial and error until a subliminally perceptible change in the voice was obtained. The software package raised the pitch of the sample by compressing the recording, putting it on the same track at a faster playback speed; the computer solved for the correct change in playback speed given the command to raise the pitch by two semitones and used the method that Bagdasarian used to create The Chipmunks cartoon voices to alter the pitch. Second, a separate command allowed the compressed sample to be re-expanded to its original length while keeping the effects of the pitch-shift command on the sample stored in the computer's memory. This command requires the use of two virtual tracks within the memory taken up by the package; one for the compressed sample and the other to "record" the re-expanded sample. After the altered and re-expanded sample was complete, it could then be recorded onto an audio cassette and fitted into the excerpt in place of Turner's original voice with standard audio equipment and normal dubbing techniques. Once this was done, the stimulus cassette was complete.

This was how I planned it. The result that actually came from the stimulus cassette, as I learned after the experiment was in progress (and thus too late for me to try another method of manipulating the voice of Turner), was Turner's voice reduced to an

almost inaudible muttering instead of Turner's voice at a pitch two semitones higher than normal. I had serendipitously created the most obvious treatment condition possible in an experiment using recorded voices--a test of audible speaking voice versus inaudible speaking voice. That said, the production process that I actually used did yield a stimulus cassette which was a usable tool to test my research hypotheses.

B. The Dependent Variables

The original dependent variable in this experiment is the set of answers to a questionnaire provided to each research subject before they were allowed to hear the recordings. The questionnaire was organized in two major sections. After the introductory question on who won the debate, the first major section asked subjects to mark the emotional responses they felt because of what Mulroney said or did during the excerpt and then, in a separate subset of answers, the responses they felt because of what Turner said or did during the excerpt.

The measurement method for the first main section of the questionnaire was derived from Izard's (1991) Discrete Emotion Scale (in Tomkins and Izard, 1965, 352-389) and parallels the use of emotion items in several studies of American election campaigns (such as Abelson et al., and Marcus); I will refer to this particular technique from now on as the emotion experience scale to separate it from the otherwise similar semantic differential items described below. Emotion experience scale items are meant to measure the immediate reaction of the subject to the debate. The emotion experience scale asks the subject to rate the emotions he or she felt as a result of someone's

behaviour on a four-point scale where a score of 1 means the subject definitely felt the emotion, 2 means the subject probably felt that emotion, 3 means the subject cannot decide whether they did or did not feel that emotion, and 4 means the subject did not feel that emotion.

The second section comprised Semantic Differential scale items for Turner and Mulroney on twelve bipolar adjective pairs for each leader. The semantic differential scale, devised by Osgood in 1957, is a five-point scale the extremes of which are two adjectives of opposite meaning (hence the term semantic differential) while the centre is the word "neutral". Semantic differential scale items, unlike emotion experience scale items, measure the subject's appraisal of the debaters and the emotional reactions that resulted from that appraisal. The items used in this experiment were derived from work done by Pierce (1996) on the dimensions of emotion and chosen to measure traits associated with the three-dimensional theory of emotion presented in Chapter Two of this thesis.

To complete the questionnaire, six more questions were asked about various things that subjects could have brought to the experimental setting. These questions included the subject's own opinion about the Canada-United States Free Trade Agreement, which federal and provincial parties the subject supported, whether the subject grew up in Edmonton or not, and the age and sex (male or female) of the subject. These items were ultimately dropped from the analysis when early results indicated that the items had no statistically significant effect on the responses given by the subjects.

The questionnaire itself was designed so that research subjects could use a

standard multiple-choice answer sheet to record their responses to each item. A standard multiple-choice answer sheet is the kind that students fill in with an HB pencil and that instructors can take to the optical scoring facility that most universities have in order to score the students' responses. These responses, in turn, were the basis for a series of statistical dependent variables which represent the core of my statistical analysis in Chapter Five of this thesis; an explanation of how they were formed is needed here.

Factor analysis of those emotion experience items (see table 4--2) in the questionnaire led me to develop four scale-based dependent variables from these items for statistical analysis: one scale for the positive valence associated with Brian Mulroney, one scale for the positive valence associated with John Turner, one scale for the potency and activation associated with Mulroney, and one for the potency and activation associated with John Turner. The analysis of the emotion experience data obtained from the research subjects actually began with two factor analyses, one analysis of the emotion experience items for Mulroney and one of the items for Turner. The standard method of doing a factor analysis is to evaluate items in terms of which potential factors have an eigenvalue greater than exactly 1 and calculate the coefficients for each of the selected items on the factors that have an eigenvalue that large. When this was done for the Mulroney emotion scale items, three factors passed the criterion of (eigenvalue >1) while four factors passed that criterion from the analysis of the emotion items for Turner. But when the potential factors were compared against the emotion scale items, the factors did not provide a sensible explanation of the data. After comparing the factor analysis with the original questionnaire, I decided that a factor analysis with the components limited to

the two strongest factors for each candidate would be the best way to approach the data (in each case, the third factor had an eigenvalue of only about 1.25 and would increase the variation explained by the analysis only from about 48% to about 58%; this made the third factor potentially expendable). When the best two-factor solution for each candidate was forced onto the data from Turner's and Mulroney's emotion scale items, and the data were compared against the questionnaire, a clear pattern emerged. The four real factors in total which emerged from the analysis were one factor for Mulroney that represented how subjects felt as a result of Mulroney's performance (known hereafter as valence), one factor that represented a combination of Mulroney's vocal potency and the audience's activation resulting from his presentation, one factor for Turner that represented how subjects felt as a result of Turner's performance (this factor for Turner corresponding to the one for Mulroney), and one factor that represented a combination of Turner's vocal potency and the audience's activation that resulted from his presentation (again, this factor corresponds to the one for Mulroney). Each of the four real factors, in turn, was used to create a scale score which served as an ultimate dependent variable for the purposes of a statistical analysis of my results. Before the scale scores were calculated, the original scores were reflected so that a high score on an item meant more of the emotion was felt (thus "definitely felt" counted as 4 instead of 1, "felt slightly" counted as 3 instead of 2, "can't decide" counted as 2 instead of 3, and "did not feel"counted as 1 instead of 4. "Surprised" counts as a score of zero on both candidates' valence scores because surprise is an emotion of neutral valence (a surprise can be pleasant or unpleasant) while counting as its normal score on both candidates' arousal scores because

surprise does arouse the attention of the audience. "Bored" counts as a score of negative one on both candidates' arousal scores because boredom is the opposite of arousal. Because the emotion experience factor scale scores representing each leader's valence are made using the same items at the same weighing factors, and because the emotion experience factor scale scores for each leader's arousal are made using the same items at the same weighing factors, all four of the emotion experience factor scale scores can be shown in the one table.

To conclude my discussion of the emotion-experience items, here are two hypotheses about them which will be tested by the thesis experiment. The first hypothesis suggests that there should be no relationship between a candidate's emotion-experience valence score and a candidate's emotion-experience arousal score (based on Gillespie, 1994). The second suggests that a positive relationship should exist between subjects' scores on emotion experience arousal and their scores on semantic differential activation, as described in the next paragraph.

Table 4--2: Emotion Experience Factor Scale Scores for Mulroney and Turner

Item used (M and T)	4 on item means you definitely felt	Factor in Leader's Valence	Factor in Leader's Arousal
2 and 15	Hopeful	+1	+1
3 and 16	Sad	-1	+1
4 and 17	Interested in hearing more	+1	+1
5 and 18	Disgusted	-1	+1
6 and [illegible]	Bored	-1	-1
7 and 20	Angry at him	-1	+1
8 and 21	Afraid of what he'd do as PM	-1	+1
9 and 22	Sympathetic	+1	+1
10 and 23	Upset	-1	+1
11 and 24	Excited about the debate	+1	+1
12 and 25	Surprised	0	+1
13 and 26	Uneasy	-1	+1
14 and 27	Inspired	+1	+1

The final factor analysis of the semantic differential scale items (see table 4--3) was done in one batch covering all the relevant items for both candidates, instead of one batch for Turner and one for Mulroney. This analysis resulted in five factors that passed the criterion of an eigenvalue greater than exactly 1. Again, however, the factor analysis did not give a clear picture of what was happening with the items in the questionnaire

when the five-factor solution was compared against those items. This led me to try to force the best four-factor solution on the data, sacrificing about 5% of variance explained (from about 61% with the five-factor solution to about 56% with the four-factor solution) for the sake of, perhaps, a clearer demonstration of what was going on with the data. This gave a clearer solution, showing separate activation factors and valence factors for Turner and Mulroney; that solution resembled the result obtained from the analysis of the emotion scale items earlier in the questionnaire. However, the valence factors (liking or disliking) for Mulroney and Turner showed significant factor coefficients on only three items for each candidate while the items that were significant had coefficients for Turner going one way while the ones for Mulroney went the other way. This led to the decision to create one valence variable of six items, obtained from the semantic differential scale items that scored Turner's positive valence minus Mulroney's positive valence (i.e. how happy you felt about the candidate), in order to consolidate the two valence scales for each candidate; again, this reduction of the overall semantic differential data to a three-factor solution cost me only about 6% of variance explained (from about 56% to just less than 50%). In return, the three factors provided me with two ten-item scales (one representing the activation of Mulroney and the other representing that of Turner) and a six-item scale (representing how well the subject liked Turner minus how well that person liked Mulroney). The items used to create the semantic differential scale scores are indicated in Table 4--3.

The results of the data analysis comprise the topic of Chapter Five in this thesis.

Table 4--3: The Semantic Differential Scale Scores from the Final Factor Analysis

Item Number	1 to 5 means	Factor in (T-M Valence Score)	Factor in Mul. Activate Score	Factor in Tur. Activate Score
28 and 29	Negative to Positive	29: +1 28: -1		
32 and 33	Tense to Relaxed	32: +1 33: -1		
40 and 41	Pleasant to Annoying	40: +1 41: -1		
30 and 31	Dull to Bright		30: +1	31: +1
34 and 35	Insecure to Secure		34: +1	35: +1
36 and 37	Genuine to False		36: -1	37: -1
38 and 39	Inactive to Active		38: +1	39: +1
42 and 43	Unemotional to Emotional		42: +1	43: +1
44 and 45	Determined to Wavering		44: -1	45: -1
46 and 47	Incompetent to Competent		46: +1	47: +1
48 and 49	Strong to Weak		48: -1	49: -1
50 and 51	Feeling to Unfeeling		50: -1	51: -1
52 and 53	Uncertain to Assured		52: +1	53: +1

Chapter Five: Results

I. Predictions based on the Research Hypothesis

The experiment is meant to test what happens when the voice of only one participant in the debate, namely John Turner, is made inaudible while the voice of the other person, Brian Mulroney, is left unchanged. The voice of Brian Mulroney remains constant in the debate presented to all of the experimental and control groups in the thesis experiment. Because of this, there should be no significant difference between the treatment and control groups on Mulroney's emotion experience valence score, Mulroney's emotion experience arousal score, or Mulroney's semantic differential activation score. On the other hand, the experimental groups heard a version of the debate in which Turner's voice was made inaudible while the control groups heard the debate with Turner's voice unchanged. Because of this, there should be a significant effect of the treatment condition on Turner's emotion experience valence score, Turner's emotion experience arousal score, Turner's semantic differential activation score, the semantic differential score for (Turner valence minus Mulroney valence), and the score for the extent of Turner's victory in the debate. The change from control groups to experimental groups should result in a negative effect on those five scores, represented by a negative slope of the regression line of the dummy variable regression.

The place where the experiment took place, however, should have no significant effect on the scores for any of these variables. A test of where the experiment took place should not show significant results either way. The next section shows what happened.

II. Regression of the Scale Scores

Each of the four emotion experience scale scores for the sample in this study was tested first by running multiple regression analyses. The first set of regressions of the scores used the treatment condition as my independent variable and controlled only for whether or not the experiment took place in class "2". The following table shows the results obtained from a multiple regression using only these two predictor variables. The slopes of all regression lines in the table are unstandardized slopes (B's instead of betas).

Table 5--1: Multiple Regression of Emotion-Item Scale Scores on Two Predictor Variables

Dependent Variable	B for Treatment Condition (one-tailed test)	B for Done in Class "2" (two-tailed test)
Mulroney Valence (Em. Exp.)	0.9745	0.4970
Mulroney Arousal (Em. Exp.)	-0.5157	-1.4153
Turner Valence (Em. Exp.)	-2.8634 ***	-1.4254 *
Turner Arousal (Em. Exp.)	-1.4054 **	-0.5785
Turner Active (Sem. Diff.)	-7.497 ***	-2.187 *
Mulroney Active (Sem. Diff.)	2.896 ***	0.778
(T-M) Valence (Sem. Diff.)	-1.021 **	0.144
Extent of Turner's Win	-0.776 ***	-0.362 *

*=0.10 LE (sig. of B) LE 0.05 **=0.05 LE (sig. of B) LE 0.01
***=(sig. of B) LT 0.01

On Mulroney's emotion experience scores for valence and arousal, the effect of treatment condition does not approach statistical significance; but then again, it should not do so. Because both treatment conditions used Mulroney's actual voice, there should not be any variation in the results obtained in the first two tables as a result of the treatment condition. The important result here is that treatment condition did have a significant impact on subjects' responses to Turner and it was in the predicted direction; that agrees with the hypothesis. The one unusual result from this analysis was that Mulroney's semantic differential activity score was positively affected by the treatment condition (in other words, Mulroney was judged more active by the people in the experimental groups); Mulroney's gain may be a function of Turner's loss.

There were also some differences between classes in the response to Turner, however. Turner's emotion experience valence score, Turner's semantic differential activation score, and the extent of Turner's win were marginally affected by where the experiment took place. These differences might be a function of the different composition of the students in the two classes, but the lack of a significant difference between classes either on Turner's emotion experience arousal score or on the semantic differential score for (Turner valence minus Mulroney valence) provides evidence against that interpretation of the results. The physical layout of where the two classes took place provides an alternate explanation. Class "2" was held in a large lecture hall while class "1" was in an ordinary classroom; this may account for the marginally significant

differences associated with where the tape was presented. This interpretation is supported by the evidence that all complaints that the voice of Turner was inaudible came from Class "2" and none from Class "1".

III. The Critical Correlation Analysis

The results obtained thus suggest that the experiment did work as predicted, but the effects probably reflect the relative inaudibility of Turner's voice rather than its increase in pitch. Now, I will use the experiment to help model the relations among the measures of the different responses to Mulroney and Turner.

In order to test these relations, I ran a correlation between the extent of Turner's win in the segment, the effects of the treatment condition, and the seven factor scale scores mentioned in this chapter (the relevant table is 5--2 in this chapter). The extent of Turner's win is the ultimate dependent variable in this analysis because it represents the subject's immediate reaction to the results of the debate. If the highest correlations with the measure of Turner's victory were made by dependent variables which showed a less robust treatment effect, then I would have reason to be less confident in the basic correctness of my research hypothesis. The underlined coefficients in Table 5--2 show, however, that the strongest correlations with the extent of Turner's victory were made by variables which were most strongly affected by the treatment condition

Another important point to note here is that the correlation between the effects of treatment condition and the semantic differential valence score for (Turner minus Mulroney) is not significant, although not quite zero. This apparently contradicts the

results of the multiple regression in Table 5--1 above, which indicate that the treatment condition does have a significant effect on that semantic differential valence score. As Table 5--1 also shows, however, there is no significant effect of class on the semantic differential valence score. These data provided evidence in favour of disregarding the apparent relationship between treatment condition and the semantic differential valence score for (Turner minus Mulroney) from the multiple regression. The critcal decision made in preparing the causal model was to assign a value of zero to this coefficient, and thus to treat the variables as independent of each other--making it possible to treat the semantic differential valence score as a second exogenous variable in the experiment.

Before I continue, let me mention two important results from the correlation analysis. On page 35 above, I predicted that there should be a direct relationship between the emotion experience arousal score for each candidate and that candidate's semantic differential activation score. As the correlation table shows, there is evidence from the results of the experiment that the relationship is present for both candidates and is significant at the .05 level; this provides support for the conclusion Gillespie (1994) drew from his analysis of American election studies data, which suggests that the total amount of emotion felt by the audience measures the dimension of arousal.

The relationships expressed by these correlations will play an important role in the next section of this chapter; a structural equation model of my data using Linear Structural Relations will provide the ultimate statistical answer to what happened in my experiment. Emotion experience scores are represented by "affect" in the table in order to conserve space.

Table 5--2: Correlations between the Treatment Condition, the Statistical Dependent Variables, and the Extent of Turner's Win

	Treat. Cond.	T-Mul. S. D. val	Turner val. affect	B. Mul val. affect	Turner active affect	B. Mul active affect	Turner active sem. d.	B. Mul active sem. d.
Treat. Cond.	1.0000	-.1156	-.2834 **	.0706	-.1216	-.0344	-.4661 **	.1779 *
T-Mul S. D. val.		1.0000	.4899 **	-.4938 **	-.0883	-.1701 *	.3455 **	-.3977 **
Turner val. affect			1.0000	-.2484 **	-.0060	-.0948	.6078 **	-.2617 **
B. Mul val. affect				1.0000	-.0564	-.0719	-.2030 **	.6058 **
Turner active affect					1.0000	.5207 **	.1889 **	-.0572
B. Mul active affect						1.0000	-.0377	.2647 **
Turner active sem. d.							1.0000	-.2961 **
B. Mul active sem. d.								1.0000

IV. Structural Equation Modelling with LISREL

The final set of tests used to examine the causal relationships in the data that I obtained used the statistical technique of structural equation modelling with LISREL. LISREL (Joreskog and Sorbom, 1988) allows the researcher to specify a regression model with more constraints on the relations among the variables than found among ordinary regression models. This allows LISREL three major advantages over most other statistical techniques: 1) LISREL can be ordered to impose equality constraints on the slopes associated with parallel paths (for example, the paths from Turner Emotion Experience Arousal to Turner Semantic Differential Activation on the one hand and from Mulroney Emotion Experience Arousal to Mulroney Semantic Differential Activation on the other hand); 2) LISREL can estimate the reciprocal effects of one variable on another; 3) LISREL can calculate the total and indirect effects of one variable on another.

The data set provided completed questionnaires from 193 research subjects. The data derived from these questionnaires became the source for the final analysis of the results of my experiment, using the variables derived from the final factor analysis (semantic differential valence scores for (Turner minus Mulroney), semantic differential activation scores for each candidate, emotion experience valence scores for each candidate, and emotion experience arousal scores for each candidate). After five rounds of modifying the initial model, I ended up with a structural equation that offered a 95.9% fit as measured by chi-square tests with the data I obtained from the research subjects and explained 49.7% of the variation in my dependent variable: how well Turner did against

Mulroney in the debate segment that the subject heard. A visual representation of the causal model based on that equation appears on page 52.

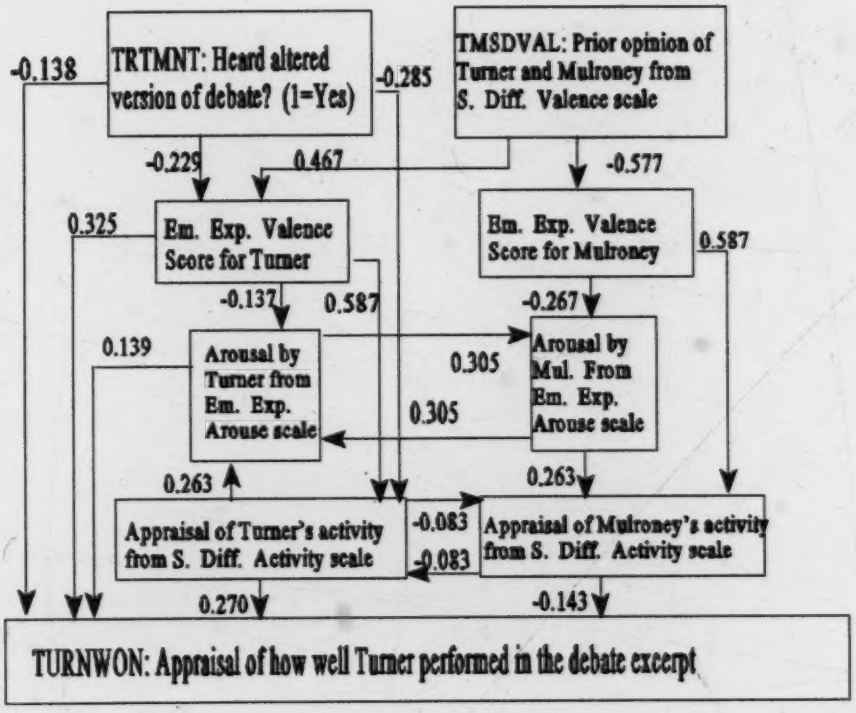

Figure 1: The Causal Model of Subjects' Attitude Change as a Result of the Debate (All coefficients are direct effects and expressed as beta-weights.)

The key to that equation was treating the semantic differential valence score for (Turner minus Mulroney) as an alternate predictor variable brought to the experiment by the research subjects. This action was justified by evidence from the correlation analysis that the treatment condition had no significant effect on that particular valence score, which suggested that it entered the analysis at the same point in time as the treatment condition. The full details of how and why such conclusions can be drawn are presented by Kish and discussed by Blalock in the latter's 1959 book Causal Inferences from Non-experimental Research. The point of these remarks is that the semantic differential valence score was the subject's contribution to the experimental situation in the same way that the treatment condition was the experimenter's contribution to it.

The two key elements in the equation are what the listener heard during the experiment on the one hand, and that listener's prior opinions about Turner and Mulroney as measured by the semantic differential valence score for (Turner minus Mulroney) on the other hand. A numerical description of the relationships between the variables in the structural equation will be shown in the form of three tables: Table 5--3 shows the direct effects of the variables on each other; Table 5--4 shows the indirect effects of the variables on each other; Table 5--5 shows the total effects of the variables on each other. All coefficients are standardized beta-weights (an increase of one standard deviation in the variable at the top of the column provokes a change in the variable at the start of the row equal to the stated number of standard deviation units). To save space in the tables, I abbreviated the semantic differential scale scores to "S. Dif." and emotion-item scale scores to "Em. X.". "N. S." appears in the table to show an effect that is not

significant at the .01 level. "0.0" indicates an effect size fixed at 0.

Table 5--3: Direct Effects of the Variables on each other from the Structural Equation Analysis

	Treat. Cond.	S. Dif. Feel. (T-M)	Turner Feel Em. X.	Turner Arouse Em. X.	Turner Active S. Dif.	Mul. Feel Em.X.	Mul. Arouse Em. X.	Mul. Active S. Dif.
Treat. Cond.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.Diff. Feel. (T-M)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turner Feel Em. X.	-.229	.467	0.0	0.0	0.0	0.0	0.0	0.0
Mul. Feel. Em. X	0.0	-.577	0.0	0.0	0.0	0.0	-.267	0.0
Turner Arouse Em. X.	0.0	0.0	-.137	0.0	.263	0.0	.305	0.0
Mul. Arouse Em. X.	0.0	0.0	0.0	.305	0.0	0.0	0.0	.263
Turner Active S. Dif.	-.285	0.0	.587	0.0	0.0	0.0	0.0	-.083
Mul. Active S. Dif.	0.0	0.0	0.0	0.0	-.083	.587	0.0	0.0
Turner win in debate	-.138	0.0	.325	.139	.270	0.0	0.0	-.143

Table 5--4: Indirect Effects of the Variables on each other from the Structural Equation Analysis

	Treat. Cond.	S. Dif. Feel. (T-M)	Turner Feel. Em. X.	Turner Arouse Em. X.	Turner Active S. Dif.	Mul. Feel. Em. X.	Mul. Arouse Em. X.	Mul. Active S. Dif.
Treat. Cond.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.Diff. Feel. (T-M)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turner Feel. Em. X.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mul. Feel. Em. X	(N.S.)	(N.S.)	(N.S.)	-.086	(N.S.)	(N.S.)	(N.S.)	(N.S.)
Turner Arouse Em. X.	-.085	(N.S.)	.153	.099	(N.S.)	(N.S.)	(N.S.)	(N.S.)
Mul. Arouse Em. X.	(N.S.)	-.096	(N.S.)	(N.S.)	(N.S.)	.160	(N.S.)	(N.S.)
Turner Active S.Diff.	-.138	.303	(N.S.)	(N.S.)	(N.S.)	(N.S.)	(N.S.)	(N.S.)
Mul. Active S.Diff.	(N.S.)	-.349	(N.S.)	(N.S.)	(N.S.)	(N.S.)	-.166	(N.S.)
Turner win in debate	-.206	.282	.168	(N.S.)	.055	-.088	(N.S.)	(N.S.)

Table 5--5: Total (Direct and Indirect) Effects of the Variables on each other from the Structural Equation Analysis

	Treat. Con.	S.Diff. Feel. (T-M)	Turner Feel Em. X.	Turner Arouse Em. X.	Turner Active S.Diff.	Mul. Feel. Em. X.	Mul. Arouse Em. X.	Mul. Active S.Diff.
Treat. Con.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.Diff. Feel. (T-M)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turner Feel. Em. X.	-.229	.467	0.0	0.0	0.0	0.0	0.0	0.0
Mul. Feel. Em. X	(N.S.)	-.551	(N.S.)	-.086	(N.S.)	(N.S.)	-.281	(N.S.)
Turner Arouse Em. X.	-.085	(N. S.)	(N. S.)	.099	.284	(N. S.)	.325	(N. S.)
Mul. Arouse Em. X.	(N.S.)	-.096	(N. S.)	.322	(N.S.)	.160	(N. S.)	.272
Turner Active S.Diff.	-.423	.303	.591	(N.S.)	(N.S.)	(N.S.)	(N.S.)	-.080
Mul. Active S.Diff.	(N.S.)	-.349	(N.S.)	(N.S.)	-.093	.565	-.166	(N.S.)
Turner win in debate	-.344	.282	.493	.162	.325	-.088	(N. S.)	-.151

Once it was decided that the semantic differential valence score for (Turner minus Mulroney) would serve as a second exogenous variable in my analysis (an alternate predictor to my experimental stimulus, for reasons described earlier in this section) and that the extent of Turner's win would serve as the final dependent variable in the experiment, the problem became one of placing the results obtained in an order consistent with the causal order assigned to the other six variables from the structural equation. Firstly, the relationship between the treatment condition and the subjects' emotion experience valence scores for Turner was assumed to be completely direct (it was completely direct, with a direct effect score of -.229 out of -.229), thus Turner's emotion experience valence score was placed immediately after the treatment condition in the block-recursive causal model that explained my results. (When I say the model is block-recursive, I mean that a closed feedback loop for each candidate starts with his Emotion Experience valence score, continues through his semantic differential item activity score, and completes the loop through his Emotion Experience arousal score; this loop is needed to explain the difference between the direct effect of emotional valence on semantic differential arousal and the total effect of emotional valence on semantic differential arousal for each candidate.) The logical parallel to the placement of Turner's valence score is to place the subjects' emotion experience valence scores for Mulroney immediately after the alternate predictor (which is the semantic differential net valence score for Turner minus Mulroney) in the other column. Immediately after the emotion experience valence score for Turner went the emotion experience arousal score for

Turner, and likewise for Mulroney. Finally, the model was set up to argue that the effects of semantic differential activity scores for both men on the extent of Turner's win were direct effects (they more or less were direct effects, with a direct effect score of .270 out of a total effect of .325 for Turner and a direct effect score of -.143 out of -.151 for Mulroney), so that these effects should go immediately before the extent of Turner's win in causal order. The paths for Turner (whose voice was altered in the experimental treatment condition only) and Mulroney (whose voice remained constant in both experimental and control treatment conditions) remained separate from each other, although there was a direct relationship between the candidates' emotion-item arousal scores (the strength of it was +0.305) along with a reciprocal relationship between the semantic differential activation scores for the two men (as shown by the sign of the coefficient; the strength of the relationship was -0.083). In summary, the subjects' prior opinions about each leader were modified first by how those subjects felt about the leader's performance, then how much those subjects were emotionally aroused by his presentation, and finally by their more cognitive judgments about the candidate's ability to activate and inspire the audience. A diagram of the path analysis can be found on page 52.

This causal process allowed me to explain some unusual results from the experiment. First, the more you were aroused by Mulroney, the more your anger was reinforced by cognitive reprocessing of his argument (the positive feedback loop starts with Mulroney's Emotion Experience valence score, continues through his semantic differential item activity score, and completes the loop through his Emotion Experience

arousal score) and thus the more likely you were to feel unhappy about him. Secondly, subjects have mixed feelings about receiving emotional stimulation from a candidate: on the one hand, the Emotion Experience scores suggest that we feel better about candidates who do not arouse us; on the other hand, the semantic differential scores suggest that we think better of candidates who can stir us to action (such people seem to make more effective leaders). This leads to the most interesting result of all from this analysis: the subject's judgment about the candidate's ability to activate that subject (shown as TSDPOTAC and MSDPOTAC) is the immediate determinant of how the subject thinks that the candidate did on that occasion; a subject's emotional involvement in the campaign is kept in the background while he or she listens to the debate and emerges after the debate is done. The results of the Sullivan and Masters (1988) study of candidates' faces would suggest that emotional responses to the person have priority over cognitive ones, all else being equal; apparently, all else is not equal in the situation of a political debate.

A consistent finding in this experiment is that the treatment condition (whether you did not or did hear the altered voice of John Turner) had an inverse effect to that the effect of the subject's prior opinions about Turner and Mulroney (which is what I hoped for) at about half the strength of the latter effect for valence ratings. Further, the direct effect of treatment condition on Turner's semantic differential activity score is about as strong as the effect of prior opinion mediated through Turner's emotion experience valence scores. Thus the importance of this experiment for the study of attitude change is that it provides further support for the idea that emotional involvement in the topic of

discussion can encourage cognitive reprocessing of the arguments for both sides; the latter in turn can lead to a more permanent change in attitude.

Chapter Six: Discussion of the Results

I. Comparing The Results With The Hypothesis

The original hypothesis of this experiment suggested that if Turner's voice were altered by raising the pitch at which he spoke (and thus making him sound more nervous than he was on the night of the debate), then the audience reaction to Turner should be less positive than it was in the actual debate. This hypothesis could not be tested by this experiment for technical reasons. However, the hypothesis that altering Turner's voice to near inaudibility would result in a less positive audience reaction to Turner--the hypothesis which the experiment could test with the materials available--was supported by the results of this experiment.

A second hypothesis, derived from the work of Gillespie (1994), argued that there should be a positive relationship between the audience's total emotion felt during the debate and its more cognitive arousal or activation as a result of the debate. Again, the results of this thesis experiment provide support for that hypothesis. In the cases both of Turner and of Mulroney, the correlations shown in Table 5--2 indicate a significant relationship at the .01 level between emotion experience arousal scores and semantic differential activity scores.

A third prediction of the experiment suggested that an analysis of the semantic differential scale items used in the experiment should yield separate factors for valence, potency (the speaker's contribution to the interaction), and arousal (the listener's contribution to it). This hypothesis was not supported by the results of the experiment.

The explanation I propose for this result is that there were not enough semantic differential scale items to separate the contributions of the speaker from those of the listener. There were only thirteen semantic differential pairs for each candidate in the questionnaire while my own inference from reading papers based on work done with the semantic differential scale indicates that about thirty semantic differential pairs are needed to reliably separate potency from arousal (compare Bradley and Lang, 1994, which did not find a potency factor using eighteen semantic differential pairs, with Smith-Lovin, 1979, who did find a potency factor using thirty-four semantic differential pairs). An alternate explanation will be propopsed in the next section of this chapter, on future research based on the experiment.

The most important conclusion of this thesis experiment, drawn from the final analysis of its data, was what no reserarch hypothesis predicted: a causal relationship between net emotion felt by the subject (i.e. emotion-item valence score), gross emotion felt by the subject (emotion-item arousal score), the subject's appraisal of what the candidate was doing in the debate (semantic differential activation score) and the subject's appraisal of how well the candidates did in the debate. No published research that I know of has ever put forward a model of how audience members process the performer's presentation. Other studies on the topic of affect, however, have interesting implications for the relationship between the speaker's presentation and the affective response of the audience; they are worth examining in the next section of this chapter.

II. Comparisons with Recent Studies about Affect

The affective response theory of Birbaumer and Ohman (1993: 6-9) suggests that the higher the level of emotional response to a presentation, the greater the resultant change in attitude. The empirically-based theory drawn from this experiment, however, has assembled the roles of emotional and cognitive components of the response to a presentation into a process that can result in a change of attitude. More important, this model suggests that the emotional response to the performer is a trigger for cognitive appraisal of that performer.

Another theory about the audience's response to vocal communication, one that may predict results similar to the ones obtained from the thesis experiment, has been proposed as recently as 1994 by Jeffrey Pittam. Pittam (1994: 96) notes that a principal theme on which the study of vocal presentation of emotion has converged concerns the roles of the three dimensions of affect; valence (measured from pleasure to displeasure) and arousal (measured from asleep to wide awake) apply in almost all social situations while potency (measured from powerful to weak) applies most strongly in situations where the audience members are also active participants in the social interaction . In the setting of the thesis experiment, where the audience's participation in the interaction was reduced to watching the debate and answering a questionnaire, there should be less room for potency to emerge as a dimension of affect independent of arousal (the speaker's contribution as opposed to that of the subject) than in most other social situations. That may explain the results of the factor analysis, but it does not explain the causal model

proposed by this experiment to explain how an audience processes affective and cognitive information.

Stanford Gregory of Kent State University was the senior researcher in two recent studies of the effects of various components of the voice on the response of audience members to the speaker. In the first study, Gregory and Webster (1996: 1236-1237) argue that people adjust the fundamental frequencies (or f-zeros) of their voices during an interview so that each voice matches the other; who makes the adjustment to the voice of whom depends on which person in the interview is deemed to have the higher status (a rough measure of potency). In the study that Gregory, Dagan, and Webster (in press) did, they argue that if third-party members of an audience cannot hear the fundamental frequency of a person's voice during a conversation, then the members of that audience will show a much less positive response to the speaker (measured by changes in valence). A tantalizing possiblity that could be followed up by future research is the suggestion that the manipulation of Turner's voice done in this experiment accidentally replicated the more deliberate removal of the fundamental frequency in the speaking voice done by Gregory and others. These studies continue the tradiition of measuring dimensions of affect, and tend to support Pittam's argument regarding the role of potency in spoken human communication.

To summarize the results of these studies, valence and activation/arousal are relatively easy to discern in almost any social presentation. Potency, however, may be less easy to detect in the situation of a formal debate such as the one presented in the

thesis experiment. Thus a possible line for future research could be testing subjects' responses to debates presented in more than one format, comparing a less formal, town-hall style debate with a more formal debate.

III. Conclusions of This Experiment

The results obtained from this thesis experiment clearly demonstrate that the audience does process the presentation of the performer. Emotional experience and cognitive appraisal of the candidates' presentations are evident in the responses of the subjects. They expressed clear positive and negative feelings about the candidates' presentations and were aroused to process the emotional information these feelings represented. Equally important, the audience appraised the activity level of each candidate. These results have clear implications for the use of symbolic interactionism as a theoretical basis for studying the relationship between a speaker's presentation and the audience's response to that presentation.

The second conclusion of this experiment is its demonstration of the effect of previously held attitudes about a given issue on the response to even a manipulated debate involving the principal rivals on that issue. The effect of previously held attitudes toward the topic still carries over in the form of attitudes toward the contending speakers, attitudes which the audience brings to an experiment and which parallel the effects of the experimental manipulation. The prior opinions the listener has about the performer (the net semantic differential valence score for Turner, in the case of this experiment) are part of the process by which attitudes can be affected and must be treated as potential

predictors of future attitude change; this is clearly demonstrated by the causal model mentioned in Chapter Five above. In short, the listener is a person, too. Any attempt to bracket out what the listener brings to an experiment on the topic of emotion, in my opinion as a researcher, is doomed to failure and thus to an incomplete explanation of what happens during an experiment on the presentation of emotion.

This leads to my third conclusion based on this experiment. Experts on rhetoric since the heyday of ancient Greece have argued that speakers can control an audience by controlling their speaking voices. The contemporary corollary to this is that a speaker could be made to mean something he did not intend to say if an unscrupulous video tape editor for some television network made deliberate changes to the speaker's speaking voice in the guise of editing that speaker's comments for telecast; the novel Nineteen Eighty-Four (Orwell, 1949) goes well with such a scenario. The problem with both these speculations, however, is the assumption they have in common that the audience does not process the speaker's presentation. The next section will introduce a theoretical reason why that assumption should be challenged; that reason pertains to Mead's original work on what we now call the theory of symbolic interactionism.

IV. Integration of the Results with Symbolic Interactionism

Hetherington (1997) has argued that the attention this thesis pays to explaining the audience's emotional response to the debate between Brian Mulroney and John Turner has drawn the thesis away from the relationship of its topic to the theory of symbolic interactionism. In that case, the next question to ask is how to bring the thesis

back onto its topic. To do so, it is helpful once again to consider the original quarrel between George Herbert Mead and John Watson about behaviourism. The difference between the Mead--Watson debate and the one presented here concerns the receiver of the significant symbol as a recipient of information.

Old-fashioned theories of rhetoric would suggest that when the speaker's voice is altered during the speech act, the audience's response does not show evidence of information processing. The lack of evidence for information processing shown in previous studies of the speaking voice encourages a treatment of spoken communication according to Watson's kind of behaviourism. In contrast, if an audience did show evidence that it processed the information it was receiving, this would support a position based on Mead's social behaviourism as opposed to Watson's orthodox behaviourism.

Watsonian behaviourism does not account for the results of this experiment--an experiment which shows a multi-stage process beginning with the stimulus of the speaker's voice and the audience's prior opinion about the speaker. No less important, such a theory does not allow for the emotion felt toward the speaker to be used as a stimulus for cognitive processing of the speaker's behaviour. In short, the thesis experiment provides evidence that the audience is engaged with the speaker in social communication beyond the Watsonian relationship between stimulus and response. But this, as I mentioned on page 8 of this thesis, is what Mead argued in his theory of social behaviourism--the theoretical prototype of symbolic interactionism.

The next step is to consider the relationship between the thesis experiment and the

work of Erving Goffman. As mentioned earlier, a performer uses expressions given to communicate significant symbols, control the definition of the situation that an audience is developing, and thus control the audience's response to the performer; expressions given off by the speaker are presumed to represent the performer's actual emotional state. The consequence for Goffman's theory of the results from this thesis experiment is simple: the audience is both emotionally and cognitively involved in its role within the interaction. This takes the theory of symbolic interactionism beyond the study of the social cognition of the performer in an interaction--and thus beyond Goffman's prime concern in The Presentation of Self in Everyday Life. Thus, while it may possible within Goffman's theory for the speaker to be emotionally and cognitively involved in his or her role in the social interaction, the results of this thesis experiment cannot be explained without the combined emotional and cognitive involvement of the audience as well.

In the same manner, the results of this thesis experiment extend the work of Arlie Russell Hochschild on the relationship between an employee's emotional expression of customer service and the cognitive expression of that service. Once again, the extension takes the study of socially presented emotion from the perspective of the performer alone to the emotional and cognitive interaction between performer and audience. Again, the critical result for symbolic interactionist theory from the thesis experiment is the fact that the audience's response to the performer is a process in which the affective component of the response triggers its cognitive component.

When symbolic interactionism can integrate the effects of social emotion and

social cognition on an audience's response to a speaker's performance, then this theory can confront the results of this thesis experiment. More important, it can confront the workday world in which social scientists and ordinary citizens live--a world where the emotional and cognitive responses of a participant in any given social interaction already are integrated to form the overall response to that interaction. In so doing, the theory of symbolic interactionism can provide a better approach than it has ever offered before to the study of human social communication--and humans, through social science, can come that much closer to understanding what they do in that most complex of all human activities.

V. Future Research Based On This Experiment

One way of improving the thesis experiment is to rent the use of an on-line editing suite from a local television production company and use the features of that suite to manipulate the voice of my target speaker during one pass from my original video cassette to the experimental video cassette. The on-line editing suite would provide two major advantages over other methods of preparing the stimulus cassette: 1) The sample could be manipulated and re-recorded at the same time, yielding the simplest and fastest way to prepare the stimulus cassette; 2) the experimental manipulation would be strong enough so that the audience could hear if they listened carefully, which would overcome the critical limitation of my attempt to manipulate Turner's voice using a graphic equalizer. This would allow me not not only to test the effect of raising the pitch of the speaker's voice upon an audience's perceptions of the speaker, but also allow me to test

the effect of acombined vocal and facial presentation versus a facial presentation only versus a vocal presentation only.

One unusual result that bears on the dependent variable in this experiment is the failure to find a potency factor in the semantic differential scale results. A possible explanation for this failure suggests that the structure of a formal debate reduces the effect of a speaker's potency. Valence (measured from pleasure to displeasure) and arousal (measured from asleep to wide awake) apply in almost all social situations while potency (measured from powerful to weak) applies most strongly in situations where the audience members are also active participants in the social interaction (Pittam, 1994: 96). In the setting of the thesis experiment, where the audience's participation in the interaction was reduced to watching the debate and answering a questionnaire, there should be less room for potency to emerge as a dimension of affect independent of arousal (the speaker's contribution as opposed to that of the subject) than in most other social situations. Further research is required to investigate this potential explanation for what happened in the experiment.

Such research could be done in a study that uses more semantic differential scale items in the questionnaire. This study would test the alternate explanations for the failure of this thesis experiment to find a potency factor in the subjects' responses to the voices of the candidates. If the conditions of a formal debate do reduce the importance of a speaker's vocal potency, then more semantic differential items should be required to detect that factor in a formal debate compared with a town-hall style debate. In short, do

the conditions of a debate play a part in determining how an audience responds to a speaker?

Other possible replications of this experiment include a design with each subject as his or her own control. This design was considered as a possible alternative to the design with separate experimental and control groups, but rejected because the experimenter would lose full control of the experiment if it were done that way. In other words, after a subject heard the experimental stimulus the first time, reactions to that hearing could easily affect his or her response to the second hearing in the opposite condition (the control condition if the subject were exposed to the treatment condition first, and vice versa) and thus contaminate the final result of the experiment. Provided that the problem could be overcome, however, this design offers the opportunity not only to test the causal model but also to examine the theory that listeners are processing the information that they hear while listening to the debate.

A method based on the design of pre-test first, presentation of treatment or control condition second, and then post-test was rejected in this experiment because it was a more complicated design than the subject required. Random assignment of subjects to the treatment or control condition usually obviates the need for a pre-test (Campbell and Stanley, 1966: 25). Again, however, this design can be taken up in a future replication of the experiment to answer any doubt about the effects of the experimental stimulus on the audience.

In short, permutations and combinations of research methods associated with this thesis experiment can generate enough studies of the relationship between the vocal

presentation of a speaker and the response of the audience for a lifetime of social research. Equally important, this topic is close enough to the experience of people outside the university to make it an interesting subject for future research, which makes the marketing of studies based on this subject to potential sources of research grant money easier. The future of studies of cognitive and affective factors in students' responses to a leadership debate seems to be bright, especially because the results of this thesis provide experimental evidence that the audience processes what it hears.

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Appendix 1: The Factor Analyses of the Semantic Differential Scale Items

Table 4--4--1. Factor Analysis of All Semantic Differential Scale Items: The Five-Factor Solution

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Question 28	.44621	.26662	-.48778	.20024	-.28660
Question 29	-.28524	-.07092	.61324	.05853	.35937
Question 30	.65374	.31917	.14485	.01998	.11429
Question 31	-.60640	.38834	-.01054	.09517	.02702
Question 32	.28758	-.09659	-.47485	.24282	.58103
Question 33	-.22455	-.15995	.49453	.45068	.09260
Question 34	.54591	.37298	-.03787	-.13607	.31877
Question 35	-.64217	.29657	.20182	.21797	-.19158
Question 36	-.55360	-.35991	.00040	-.29650	.02637
Question 37	.56023	-.41419	-.09638	-.05296	-.28470
Question 38	.51780	.39476	.35835	-.27584	-.15245
Question 39	-.48451	.44124	-.32553	-.24148	-.07052

Table 4--4--1A. Factor Analysis of All Semantic Differential Scale Items: The Five-Factor Solution (Continued)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Question 40	-.50758	-.19735	.34127	-.48370	-.21022
Question 41	.53618	-.19324	-.40918	-.31349	-.08368
Question 42	.41321	.44352	.18190	-.00696	-.40349
Question 43	-.47013	.38551	-.35195	-.22547	.12197
Question 44	-.50540	-.42343	-.34076	.26529	-.14071
Question 45	.54179	-.45517	.23700	.07581	.01242
Question 46	.63610	.41812	-.09232	.24739	.18311
Question 47	-.51156	.51990	-.02542	.31160	-.02089
Question 48	-.63075	-.47539	-.24507	.06968	-.10958
Question 49	.63019	-.48390	.07852	.03566	.02051
Question 50	-.45149	-.48223	.01166	-.26779	.38482
Question 51	.57587	-.35255	.14265	.25959	-.21651
Question 52	.52080	.42057	.14550	-.33967	.20297
Question 53	-.57134	.51009	.11021	.09184	-.03323

Table 4--4--2. Factor Analysis of All Semantic Differential Scale Items: The Four-Factor Solution

	Factor 1	Factor 2	Factor 3	Factor 4
Question 28	.44621	.26662	-.48778	.20024
Question 29	-.28524	-.07092	.61324	.05853
Question 30	.65374	.31917	.14485	.01998
Question 31	-.60640	.38834	-.01054	.09517
Question 32	.28758	-.09659	-.47485	.24282
Question 33	-.22455	-.15995	.49453	.45068
Question 34	.54591	.37298	-.03787	-.13607
Question 35	-.62417	.29657	.20182	.21797
Question 36	-.55360	-.35991	.00040	-.29650
Question 37	.56023	-.41419	-.09638	-.05296
Question 38	.51780	.39476	.35835	-.27584
Question 39	-.48451	.44124	-.32553	-.24148

Table 4--4--2A. Factor Analysis of All Semantic Differential Scale Items: The Four-Factor Solution (Continued)

	Factor 1	Factor 2	Factor 3	Factor 4
Question 40	-.50758	-.19735	.34127	-.48370
Question 41	.53618	-.19324	-.40918	-.31349
Question 42	.41321	.44352	.18190	-.00696
Question 43	-.47013	.38551	-.35195	-.22547
Question 44	-.50540	-.42343	-.34076	.26529
Question 45	.54719	-.45517	.23700	.07581
Question 46	.63610	.41812	-.09232	.24739
Question 47	-.51156	.51990	-.02542	.31160
Question 48	-.63075	-.47539	-.24507	.06968
Question 49	.63019	-.48390	.07852	.03566
Question 50	-.45149	-.48223	.01166	-.26779
Question 51	.57587	-.35255	.14265	.25959
Question 52	.52080	.42057	.14550	-.33967
Question 53	-.57134	.51009	.11021	.09184

Table 4--4--3: Factor Analysis of All Semantic Differential Scale Items: The Three-Factor Solution

	Factor 1 (Mul. Act)	Factor 2 (Turn. Act)	Factor 3 (Val: T-M)
Question 28	.27676	.05245	-.61353
Question 29	.01581	-.01831	.68574
Question 30	.67912	-.16704	-.03532
Question 31	-.05092	.68167	.10524
Question 32	-.09159	-.14855	-.53560
Question 33	-.06392	-.10117	.55937
Question 34	.58897	-.01900	-.19604
Question 35	-.05109	.57218	.32839
Question 36	-.59758	.04232	.15949
Question 37	-.03665	-.65161	-.19905
Question 38	.74145	-.07024	.20467
Question 39	-.06039	.71924	-.24234

Table 4--4--3A. Factor Analysis of All Semantic Differential Scale Items: The Three-Factor Solution (Continued)

	Factor 1 (Mul. Act)	Factor 2 (Turn. Act)	Factor 3 (Val.: T-M)
Question 40	-.31433	.07226	.47262
Question 41	.00137	-.39070	-.52215
Question 42	.65165	.07041	.04981
Question 43	-.10553	.67122	-.26799
Question 44	-.74986	.03577	-.18793
Question 45	.04859	-.74583	.14130
Question 46	.65501	-.02503	-.27532
Question 47	.10008	.73417	.05791
Question 48	-.82562	.04854	-.05856
Question 49	.01640	-.78801	-.03590
Question 50	-.62959	-.12057	.15550
Question 51	.11176	-.66294	.03129
Question 52	.68173	-.00509	-.01051
Question 53	.11005	.73288	.20834